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(71) Applicant *(for AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NZ, OM, SD, SG, SL, SZ, TT, TZ, UG, ZA, ZM, ZW only)*: **UNILEVER PLC** [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).

(71) Applicant *(for AL, AM, AT, AZ, BA, BE, BF, BG, BJ, BR, BY, CF, CG, CH, CI, CM, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, FR, GA, GE, GN, GQ, GR, GW, HR, HU, ID, IS, IT, JP, KG, KP, KR, KZ, LR, LT, LU, LV, MA, MC, MD, MG, MK, ML, MR, MX, MZ, NE, NL, NO, PH, PL, PT, RO, RU, SE, SI, SK, SN, TD, TG, TJ, TM, TN, TR, UA, UZ, VN, YU only)*: **UNILEVER NV** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant *(for IN only)*: **HINDUSTAN LEVER LIMITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, 400 020 Mumbai (IN).

(72) Inventors: **SLAVTCHEFF, Craig, Stephen**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US). **MURRAY, Liam, Anthony**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US). **TELESCA, Josephine**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US). **GOTT, Robert, Edward**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US).

(74) Agents: **ELLIOTT, Peter, William** et al.; Unilever PLC, Patent Department, Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).

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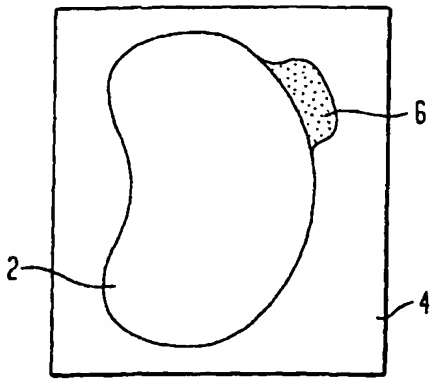
(54) Title: COSMETIC PRODUCT WITH A DEVICE FOR EVALUATING ITS EFFICACY AND METHOD OF USING THE LATTER



(57) Abstract: A cosmetic product system is provided which includes a cosmetic composition for combating signs of aging, and a test device packaged with the composition. The device includes a mechanism for evaluating progress of the combat against the signs of aging occurring over a period of time within which the composition is applied to an area of skin being monitored method for evaluating efficacy of the said cosmetic composition.

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COSMETIC PRODUCT WITH A DEVICE FOR EVALUATING ITS EFFICACY AND METHOD OF USING THE LATTER

The invention concerns a cosmetic composition and method for combating the signs of aging in combination with a test device packaged with the composition to demonstrate proof of its efficacy.

A number of publications have disclosed test devices for the lay person to self-diagnose their skin conditions. U.S. Patent 3,571,947 (Maddison et al.) discloses a system for identifying blemishes. A flexible, compliant film of plastic is imprinted with pictorials of various types of common blemishes. These reflect different dermal diseases. They are cross-referenced with a handbook identifying the diseases from the type of blemish. Cross-indexing treatments further provides a suggested treatment to remedy the medical condition.

U.S. Patent 5,727,949 (Bar-Or et al.) provides a dual ring panel reference card. The panels are mounted for relative movement whereby a selected diagnostic characteristic of a skin problem can be aligned with a second diagnostic characteristic and a determinable prognosis revealed from the specific paired characteristics.

CuDerm Corporation has developed a simple diagnostic test to determine the degree of skin dryness. CuDerm utilizes adhesive discs (D-Squame) capable of removing a small section of squameous cells (skin cells) and compares the results against a chart. The disc is a transparent plastic with adhesive on one side. The test involves placing the adhesive surface of the disc against a user's forehead, peeling off

the disc and placing same on a dark background card. Flakes from the skin stick to the adhesive surface and are visualized against the dark background. Other than loose flakes, no topographical imprint is ever taken from the evaluated user's skin.

There are many cosmetic products sold which advertise certain skin benefits. Consumers usually cannot easily discern whether the claimed benefit is actually delivered. Even if perceivable, these actives impart an effect which may emerge only slowly over a period of time. Anti-aging actives are particularly illustrative. Facial fine lines and wrinkles can be minimized with actives such as alpha hydroxycarboxlic acids and/or retinol, to provide some visible improvement over an extended application period. They don't function instantaneously.

Accordingly, it is an advantage of the present invention to provide a cosmetic product system and method whereby progress in treating the signs of aging with a cosmetic product is measured by a low cost simple test for a consumer to self evaluate efficacy of the product.

Another advantage of the present invention is to provide a cosmetic product system and method employing a low cost simple self evaluation tool for measuring changes in fine lines and wrinkles on the face or other aging susceptible parts of the human dermis.

A cosmetic product system is provided which includes:

(i) a cosmetic composition for combating signs of aging; and

(ii) a test device packaged with the composition, the device having a means for evaluating progress of the combat against the signs of aging over a period of time after the composition has been applied to an area of skin being monitored.

Among possible test devices are strips based on a water-insoluble substrate and a deformable semi-solid layer deposited onto the substrate, the layer being conformable to skin topography in three-dimension when placed against the monitored area of skin.

Alternatively the test device may include a water-insoluble substrate and an imaging layer deposited thereon, the layer being selectively sensitive to such skin properties as sebum concentration, moisture, temperature and pH.

Differentiation between facial ridge lines and depressions defining "wrinkles" also may be imaged through application of a powder, preferably a non-soluble substance respective to the adhesive layer of a test strip. Upon contact with the adhesive layer, only those raised areas of the skin topography will transfer powder. In this manner an image of fine lines and wrinkles appear as a powder pattern over the adhesive coating of the strip.

One aspect of the present invention requires a consumer to save the image for a period of time as a comparison against a subsequent test image. Testing may occur initially and thereafter at 4, 8, 12, 16 and/or 20 weeks. The time intervals and numbers may be longer or shorter. Therefore, it is desirable to fix the taken image to preserve same at least for a period of several weeks.

Fixatives will depend upon the particular test device. Those devices which image by deformation of an adhesive layer can utilize a transparent carrier substrate. Upon being printed with a wrinkle image, the adhesive surface is placed adjacent a darkened (e.g. black) area. The pattern can then be viewed through the transparent plastic supporting substrate.

Further fixation can occur by providing the darkened background area with a chemical interactive with the imaged adhesive layer. Hardening can then occur between the chemicals of the dark background and those of the adhesive. For instance, the reactions may be oxidation-reduction, acid-base or polymerization in nature.

Alternative fixation can occur with adhesives that are UV or even natural/fluorescent light sensitive. A light penetration preventive protective peel-off strip covers the light sensitive adhesive, the latter supported on a substrate sheet. In operation, the light protective sheet is removed, the adhesive surface applied to the treatment area of the face, an image is formed through deformation of the adhesive and then the resultant image is exposed to light which cures polymers forming the adhesive into a hardened material. Normally the supporting substrate bears a darkened color to contrast the image.

Another aspect of the present invention provides a system wherein a cosmetic composition is packaged with a test device. A variety of packaging arrangements are envisioned. The test device may be in the form of a cellulosic, plastic or combined material strip or tape placed into a carton alongside a container holding the cosmetic composition.

Alternatively the test device may be incorporated as a panel segment of a carton, the latter protectively surrounding the cosmetic composition. In a variation thereof, the test device may be detachably joined to the package through a perforated or weakened construction line, or through an adhesive joinder.

Further, there is provided a method for evaluating efficacy of an anti-aging cosmetic product, the method including:

(A) providing a kit which includes:

(i) a proof tape including a support substrate provided with an adhesive on a surface thereof, the adhesive having sufficient tack to maintain an imprint of fine lines and wrinkles after removal of the tape from the skin; and

(ii) a fixative device for maintaining the imprint for a time longer than would occur without the fixative;

(B) applying the cosmetic product to the skin;

(C) placing the adhesive surface of the proof tape against the skin treated with the cosmetic product in step (B);

(D) removing the strip and contacting same with the fixative; and

(E) repeating steps (C) and (D) at a future time followed by comparison of patterns resultant from the first and second proof tape applications to the skin.

Additional advantages, features and benefits of the present invention will become more readily apparent from consideration of the drawing in which:

Fig. 1 is a first embodiment of an application strip according to the present invention;

Fig. 2 is a second embodiment of an application strip according to the present invention; and

Fig. 3 is the application strip of the embodiment shown in Fig. 1 subsequent to being placed on the skin, removed therefrom and mounted on a darkened field reading card.

Now consumers have been provided with a system for cosmetically combating the signs of aging in tandem with a test device for measuring progress on efficacy of the cosmetic composition over a prolonged period of its application. The cosmetic product system includes a cosmetic composition packaged together with a simple diagnostic test device.

Wrinkles are defined by peaks and troughs on the skin surface. Test devices according to the present invention transfer wrinkle topography into a 2D image so that a consumer can easily see where the wrinkles exist. Through this invention, elements of skin composition or state are utilized to "transfer" image of peaks/troughs onto a viewing substrate. Typical elements include surface squames, pH, oil/sebum concentration, moisture, temperature and direct 3D relief images. Generally these approaches involve a substrate, usually a water-insoluble cellulosic or plastic

strip, coated with an imageable substance. Several possible embodiments of the test device are as follows:

(A) Surface Pretreatment

In this system, a strip is prepared as a water-insoluble substrate coated with an adhesive. Powder (e.g. titanium dioxide, talc or clay) is delivered onto a treatment area of skin. Thereafter, the adhesive side of the strip is applied over the powdered area. Removal after contact leaves an image (2D) of wrinkles. These strips are similar to transdermal patches utilized for drug delivery. They are available from Lohmann Therapie Systemes, Germany.

(B) pH

A litmus or other pH sensitive paper or plastic coated with a pH indicator is placed in contact with a skin treatment area. The pH produces a color change at point of contact. Since the peaks or ridges defining wrinkles first contact the pH sensitive paper, color change on the strip will be patterned according to that of the wrinkles.

(C) Oil/Sebum

Sebum sensitive film is available from the 3M Corporation. Low levels of mineral oil are dispersed on the film resulting in saturation wherever sebum is absorbed from peak areas on the skin surface. Colors darken along the sebum pattern thereby forming an image of the wrinkling.

(D) Moisture

A plastic or cellulosic strip is impregnated with a water activatable reagent causing a color change. Moisture from sweat along protruding areas of wrinkle formation attaches to the strip when contacting the skin. Typical chemicals which can react with water to image include lactones or anhydrides opening to carboxylic acid, electrolytes activated by water dissolution closing an electric circuit or simply dissolution of water-soluble salts leaving an image in a background of undissolved salts.

(E) Temperature

A strip can be coated with a cholesteric crystal (liquid crystal) material which upon slight change of temperature caused by contact with skin temperature along ridges of the wrinkles changes from one to another color.

(F) Topography (Direct 3D Relief Images)

A supporting substrate sheet is provided with a tacky adhesive (e.g. polyacrylate, polyvinyl alcohol, alginate gums or starch), a wetted Plaster of Paris (e.g. Gypsona Plaster Bandage), or semi-solid wax (e.g. paraffin or microcrystalline polyethylene wax). Employment of a direct 3D relief image such as through use of an adhesive operates best when meeting four criteria. The adhesive should not hurt when pulled apart from the skin. Secondly, the adhesive needs to be sufficiently flowable (impressionable) to accept an image yet sufficiently non-flowable to retain the image once received. Thirdly, the system needs to be contrastable

against a background. Finally, a support or substrate is required as a carrier.

Advantageously, a fixative is useful for maintaining a developed image of a wrinkle for a sustained period of time. Fixation can be chemical in nature. For instance, adhesives can be blended with UV or natural light or fluorescent sensitive activatable monomers or oligomers. Light is shielded from the adhesive by an opaque strip covering the curable adhesive surface. Once the adhesive has contacted the skin and formed a wrinkle pattern, the pattern is exposed to UV or natural or fluorescent light to harden the impression.

Another fixative system employs a transparent or darkened attachment strip. Here an adhesive deposited onto a blackened substrate is contacted against the target skin. Upon removal, the adhesive surface with its image is overlain with a transparent sheet. The latter fixes the image against destruction. In the alternative, the original substrate carrying the un-imaged adhesive can be transparent. After contact of adhesive with the target skin, the adhesive is removed and a black-surfaced strip is applied over the wrinkle image. Viewing of the resultant fixed pattern can then be through the original transparent substrate. This system is described in more detail below.

Fig. 1 illustrates a transparent strip **2** adhesively attached to a release backing **4**. Strip **2** is kidney-shaped for placement adjacent either the right or left eye so as to cover the periorbital canphus (crow's foot area). This

curvilinear shape allows for maximum coverage around an outer corner of the eye.

A tab 6 is attached to the strip 2. The tab serves as a gripping structure. Separation of the strip from the release backing is facilitated by initiating removal at the tab. The opaque, preferably black coloration of the tab in contrast to the transparency of the strip signals to a user the difference of this area and cues the user to start lifting at that point.

Fig. 2 illustrates a second embodiment of a more elongate double lobed shape. Strip 2' is removably adhered onto a release backing 4'. Tab 6' is oriented between both lobes of the strip and lies along an axis of symmetry bisecting the strip. The elongate nature of this embodiment even more than the first embodiment ensures that eyebrow hairs are not trapped under the adhesive when applied. It is undesirable to capture hairs. Any hairs caught in the adhesive may cause pain upon the strip being removed. This is considered an undesirable ouch factor.

In the procedure for testing efficacy of various anti-aging products, the strip is removed from its release backing. Thereupon it is placed along an area of skin to be imaged for its topography. Facial areas are primarily intended for evaluation, and more particularly areas surrounding the eye. Subsequently, the strip is removed and placed upon an imaging card 8. The dark, preferably black background of the card fixes the imprint while the transparent strip allows a view of that imprint. Fig. 3 illustrates the strip

showing fine lines and wrinkles **10** being visualized against the black background of the imaging card.

Subsequent to a baseline analysis of fine lines and wrinkles, treatment is begun with a selected cosmetic anti-aging product. Treatment is continued for a period of time sufficient to allow the product to treat the signs of aging.

A second imaging field is placed adjacent to the first. After the treatment period of time, such as four weeks, another imprint is taken by a second transparent strip **21**. If the cosmetic product is properly functioning, fewer fine lines and wrinkles **11** will appear on the imaged second field. This procedure can then be repeated at six or eight weeks or at any further time interval. Each test will employ a fresh strip and new blackened area on the same or another image card.

With the particular illustrated embodiment, the adhesive is sufficiently mobile to flow into skin crevices representing the fine lines and wrinkles. Yet the adhesive is not too strong to minimize skin pull when removing the strip from the face. Without the appropriate flowability, only surface cells would be picked up without any imaging of the fine lines and wrinkles.

Strips for use with the illustrated embodiment may be transparent articles allowing observation of any patterns on a lower surface thereof. Suitable materials for the strip are plastics or cellulosics of any variety which can be formed as transparent films. Typically the plastic may be selected from polyethylene, polypropylene, polystyrene, polyester, polycarbonate, polyacrylate, polyvinyl chloride,

polyvinyl alcohol and polybutene. Not only homopolymers but copolymers may be utilized for the strip material. Copolymers may be formed from such monomers as C_2-C_{10} olefins, vinyl chloride, acrylates and styrene constructed through free-radical polymerization. Condensation plastics may also be utilized in the formation of copolymers wherein the monomers may be selected from C_2-C_{10} dicarboxylic acids, C_2-C_{10} polyols, C_2-C_6 alkoxylates and combinations thereof. Polyethylene, polypropylene and polyester terephthalate are the preferred plastic substrates for forming the strip.

The thickness of the strip may range anywhere from 0.00001 to 2 mm, preferably from 0.0001 to 1 mm, more preferably from 0.001 to 0.5 mm and optimally from 0.01 to 0.1 mm.

The backing is typically made from a material and in a manner that is generally impervious to the adhesive. The backing may be elastic or non-elastic but preferably the former. Flexibility allows easier removal of the adhesive strip. The backing can be formed from a variety of materials including organic polymers and cellulosics. A release coating such as a silicone may be placed on an upper surface of the backing to ease removal of the adjacent adhesive strip.

The adhesive may be a pressure sensitive or non-pressure sensitive type preferably as a layer with an average thickness from about 0.000005 mm to about 2 mm, preferably from about 0.00005 mm to about 0.5 mm, more preferably from about 0.0005 mm to about 0.25 mm, optimally from about 0.005 mm to about 0.05 mm.

Pressure sensitive adhesives suitable for use in this invention are coatable adhesives. A wide variety of coatable pressure sensitive adhesives can be used, such as solvent coatable, hot melt coatable, as well as latex PSA's that are coatable out of water. Also, solventless curable adhesives (often referred to as 100% solids) can be used. Where thicker adhesive coatings are desired, it may be desirable either to apply multiple layers of the adhesive, hot melt coat, or to photopolymerize the adhesive in situ. Specific examples of pressure sensitive adhesives include acrylates, such as isooctyl acrylate/acrylic acid copolymers, tackified acrylates, and plasticizer-containing acrylates such as those disclosed in U.S. Pat. No. 4,946,742 (Landin); natural or synthetic rubber resins, including thermoset rubbers as well as thermoplastic rubbers and elastomers, such as nitrile rubbers (e.g., acrylonitrile-butadiene), styrene-butadiene, styrene-isoprene, styrene-butadiene-styrene, styrene-isoprene-styrene, and natural rubber; silicone-based adhesives, such as polysiloxanes; polyolefins; polyesters; polyamides; and polyurethanes.

Particularly preferred are the acrylic type pressure sensitive adhesives. Most especially a pressure sensitive adhesive with a low tack value. These materials are commercially available under the Flexcon® brand.

Non-pressure sensitive adhesives are illustrated by polysaccharides. Examples are starches, chemically modified starches and natural or synthetic gums. Starches include corn and potato starches. Chemically modified starches include hydroxyalkylated starch, acylated starch,

hydroxypropyl cellulose, hydroxypropyl methyl cellulose, ethyl cellulose and carboxymethyl cellulose. Gums include alginate, guar, carrageenan, agar, Karaya, pectin, gum arabic, sclerotium, gellatin and gum combinations.

Relative thickness of the strip to the adhesive may range from 1:200 to 200:1, preferably from 1:10 to 10:1, optimally from 2:1 to 1:2. Relative weight ratio of the strip to the adhesive may range from 1:200 to 200:1, preferably from 1:10 to 10:1,optimally from 2:1 to 1:2.

Cosmetic compositions of the present invention can be formulated with anti-aging actives or moisturizers, both of which combat the signs of aging. The compositions may be in the form of creams, lotions, pastes, sticks (e.g. lipsticks), or powders. These cosmetics normally will include a carrier. Suitable carriers include water, emollients (esters, hydrocarbons, silicones, polyols and mixtures thereof), emulsifiers, thickeners and combinations thereof. Most often the carrier will be an emulsion such as an oil-in-water or water-in-oil type. Amounts of the carrier may range from about 1 to about 99.9% by weight of the cosmetic composition.

Anti-aging actives may include retinoids, ceramides, alpha or beta-hydroxycarboxylic acids, flavonoids, vitamins, sunscreens, anti-oxidants, preservatives and mixtures thereof.

Typical retinoids include retinol, retinoic acid and retinol esters. The latter include retinyl palmitate, retinyl linoleate, retinyl propionate, retinyl acetate and retinyl salicylate.

Alpha-hydroxy acids include the free acid, lactone and salt forms of glycolic acid, lactic acid, citric acid, gluconolactone, glucarolactone, tartaric acid, malic acid and mixtures thereof. Beta-hydroxycarboxylic acids are exemplified by salicylic acid as well as its esters (e.g. tridecylsalicylate) and salts including ammonium, alkanolammonium and alkalimetal salts.

Ceramides include Ceramide 1, Ceramide 2, Ceramide 3, Ceramide 3a, Ceramide 3b, Ceramide 4, Ceramide 5 and Ceramide 6, as well as pseudoceramides, phytosphingosines and tetraacetyl phytosphingosine.

Vitamins may include ascorbic acid as well as its water-soluble and water-insoluble derivatives. Illustrative are ascorbyl tetraisopalmitate, magnesium ascorbyl phosphate and ascorbyl glucoside. Other vitamins include Vitamin B3 (niacin, niacinamide and panthenol), biotin, folic acid, tocopherol and its esters (e.g. tocopherol isopalmitate), Vitamin D and combinations thereof.

Antioxidants include BHT (butylated hydroxytoluene), BHA (butylated hydroxyanisole), hydroquinone, ferulic acid and esters thereof, green tea extract, lipoic acid, N-acetyl cysteine, resveratrol and combinations thereof.

Amounts of the anti-aging actives may range anywhere from 0.0000001 to 30%, preferably from 0.0001 to 15%, more preferably from 0.1 to 5%, optimally from 0.5 to 2% by weight of the cosmetic composition.

Except in the operating and comparative examples, or where otherwise explicitly indicated, all numbers in this

description indicating amounts of material ought to be understood as modified by the word "about".

The term "comprising" is meant not to be limiting to any subsequently stated elements but rather to encompass non-specified elements of major or minor functional importance. In other words the listed steps, elements or options need not be exhaustive. Whenever the words "including" or "having" are used, these terms are meant to be equivalent to "comprising" as defined above.

All parts, percentages and proportions referred to herein and in the appended claims are by weight unless otherwise illustrated.

CLAIMS

1. A cosmetic product system comprising:
   (i) a cosmetic composition for combating signs of aging; and
   (ii) a test device packaged with the composition, the device having a means for evaluating progress of the combat against the signs of aging over a period of time after the composition has been applied to an area of skin being monitored.

2. The system according to claim 1 wherein the signs of aging comprise fine lines, wrinkles and combinations thereof.

3. The product according to claim 1 wherein the signs of aging comprise sagging skin, age spots, loss of skin firmness or tone, and combinations thereof.

4. The system according to any of the preceding claims wherein the test device comprises a water-insoluble substrate and a polymeric layer deposited onto the substrate, the layer being conformable to skin topography when placed against the area of skin being monitored.

5. The system according to claim 4 wherein the polymer layer is adhesive.

6. The system according to any of the preceding claims wherein the adhesive is a polymer selected from the

group consisting of acrylates, starches, gums, polyvinyl alcohol and mixtures thereof.

7. The system according to any of claims 4 to 6 wherein the test device further comprises a protective cover substrate positioned over the polymeric layer, the cover substrate being removed prior to application of the polymeric layer against the area of skin being monitored.

8. The system according to any of the preceding claims wherein the test device comprises a water-insoluble substrate and an imaging layer deposited thereon, the layer being selectively sensitive to surface pretreatment, sebum, moisture, pH, temperature and topography.

9. The system according to any of the preceding claims wherein an image of fine lines or wrinkles is formed on a component of the test device.

10. The system according to claim 9 wherein a fixative is applied to the image.

11. The system according to claim 10 wherein the fixative is selected from the group consisting of UV or natural light initiating polymerization hardening of the component forming the image.

12. The system according to any of the preceding claims wherein the test device comprises a material selected from a cellulosic, plastic or combination material strip, and the strip is placed into a carton alongside a container holding the cosmetic composition.

13. The system according to any of the preceding claims wherein the test device is incorporated as a panel segment of a carton protectively surrounding a container holding the cosmetic composition.

14. The system according to any of the preceding claims wherein the test device is detachably joined to a carton protectively surrounding a container holding the cosmetic composition, joinder of the test device being through a means selected from group consisting of perforations, weakened carton wall and adhesive joinder.

15. A method for evaluating efficacy of an anti-aging cosmetic product, the method comprising:

(A) providing a kit which comprises:

(i) a proof tape comprising a support substrate provided with an adhesive on a surface thereof, the adhesive having sufficient tack to maintain an imprint of fine lines and wrinkles after removal of the tape from the skin; and

(ii) a fixative device for maintaining the imprint for a time longer than would occur without the fixative;

(B) applying the cosmetic product to the skin;

(C) placing the adhesive surface of the proof tape against the skin treated with the cosmetic product in step (B);

(D) removing the strip and contacting same with the fixative; and

(E) repeating steps (C) and (D) at a future time followed by comparison of patterns resultant from first and second proof tape applications to the skin.

Fig.1.

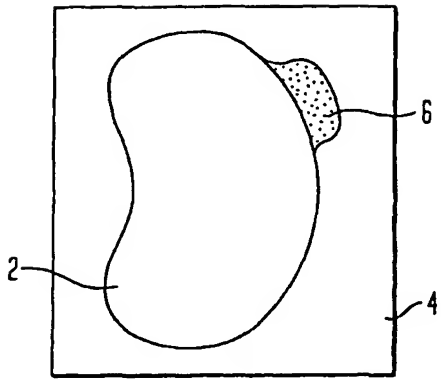


Fig.2.

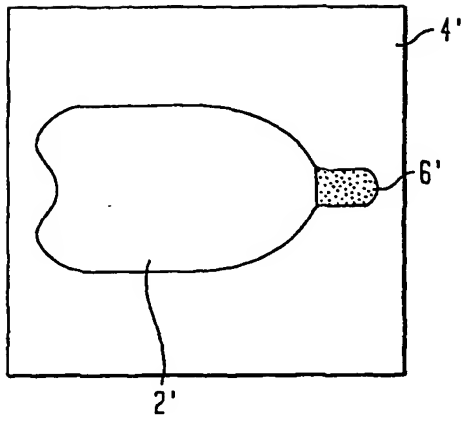
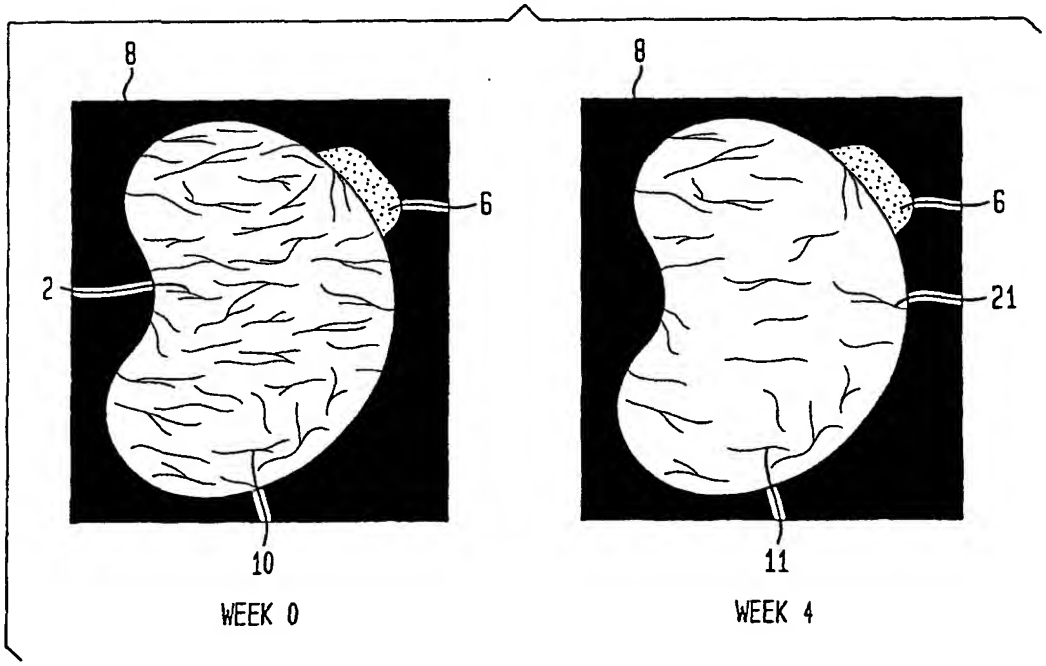


Fig.3.



INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 02/05092

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B5/103 A61B10/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	GB 2 284 154 A (ROCHER YVES BIOLOG VEGETALE) 31 May 1995 (1995-05-31) page 3, line 19 -page 4, line 39	1-3,9 4-6,11, 15
Y	US 5 589 178 A (AUBERT LUCIEN ET AL) 31 December 1996 (1996-12-31) abstract	1-6,8,9
Y A	US 5 684 573 A (KHAZAKA GABRIEL ET AL) 4 November 1997 (1997-11-04) column 1, line 9-15 column 3, line 15-63; figures 2-5	1-6,9 7,10,11, 15

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

'A' document defining the general state of the art which is not considered to be of particular relevance
'E' earlier document but published on or after the international filing date
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'O' document referring to an oral disclosure, use, exhibition or other means
'P' document published prior to the international filing date but later than the priority date claimed

'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
'&' document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 September 2002	18/09/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Dhervé, G

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 433 214 A (BREHM ROBERT ET AL) 18 July 1995 (1995-07-18) column 1, line 48-53 column 2, line 10-22 column 3, line 33 -column 4, line 11 figure 1	8
A	US 4 569 358 A (GORMLEY DANIEL E) 11 February 1986 (1986-02-11) column 3, line 6-26	10
A	FR 2 063 743 A (BOUYER HENRI) 9 July 1971 (1971-07-09) page 1, line 9-23 page 1, line 27-30; figures A,B	1-9,15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP 02/05092

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		ES	2072230 A1	01-07-1995
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(71) Applicant *(for AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NZ, OM, SD, SG, SL, SZ, TT, TZ, UG, ZA, ZM, ZW only)*: **UNILEVER PLC** [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).

(71) Applicant *(for AL, AM, AT, AZ, BA, BE, BF, BG, BJ, BR, BY, CF, CG, CH, CI, CM, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, FR, GA, GE, GN, GQ, GR, GW, HR, HU, ID, IS, IT, JP, KG, KP, KR, KZ, LR, LT, LU, LV, MA, MC, MD, MG, MK, ML, MR, MX, MZ, NE, NL, NO, PH, PL, PT, RO, RU, SE, SI, SK, SN, TD, TG, TJ, TM, TN, TR, UA, UZ, VN, YU only)*: **UNILEVER NV** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant *(for IN only)*: **HINDUSTAN LEVER LIMITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, 400 020 Mumbai (IN).

(72) Inventors: **TELESCA, Josephine**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US). **MURRAY, Liam, Anthony**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US). **GOTT, Robert, Edward**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US). **SLAVTCHEFF, Craig, Stephen**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US).

(74) Agents: **ELLIOTT, Peter, William** et al.; Unilever PLC, Patent Department, Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).

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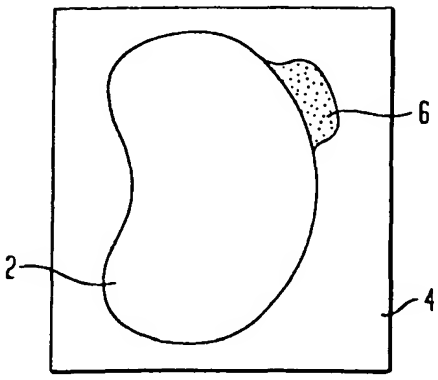
[Continued on next page]

(54) Title: WRINKLE INDICATOR TAPE STRIP AND METHOD OF USING THE SAME



(57) Abstract: A test kit and method for visualizing fine lines and wrinkles is provided, the kit including a transparent strip (2) with an adhesive on one surface thereof and an imaging substrate with at least one darkened glossy area for receiving the transparent strip. Written instructions are provided in the kit. These advise a consumer to place the adhesive surface of the strip against a skin area requiring measurement. Thereafter the strip is removed and placed against the darkened area of the substrate. Topographical features of the skin can be viewed through the transparent strip with the transferred skin image onto the blackened background. A cosmetic anti-aging product can be applied to the skin over a period of time. Beneficial changes caused by the product are visualized through the test strip as periodic measurements are taken.

WO 02/096292 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WRINKLE INDICATOR TAPE STRIP AND METHOD OF USING THE SAME

The invention concerns a test strip for evaluating changes in skin wrinkles, especially in the context of measuring the efficacy of anti-aging cosmetic products.

A number of publications have disclosed test devices for the lay person to self-diagnose their skin conditions. U.S. Patent 3,571,947 (Maddison et al.) discloses a system for identifying blemishes. A flexible, compliant film of plastic is imprinted with pictorials of various types of common blemishes. These reflect different dermal diseases. They are cross-referenced with a handbook identifying the diseases from the type of blemish. Cross-indexing treatments further provides a suggested treatment to remedy the medical condition.

U.S. Patent 5,727,949 (Bar-Or et al.) provides a dual ring panel reference card. The panels are mounted for relative movement whereby a selected diagnostic characteristic of a skin problem can be aligned with a second diagnostic characteristic and a determinable prognosis revealed from the specific paired characteristics.

CuDerm Corporation has developed a simple diagnostic test to determine the degree of skin dryness. CuDerm utilizes adhesive discs (D-Squame) capable of removing a small section of squameous cells (skin cells) and compares the results against a chart. The disc is a transparent plastic with adhesive on one side. The test involves placing the adhesive surface of the disc against a user's cheek, peeling off the

disc and placing same on a dark background card. Flakes from the skin stick to the adhesive surface and are visualized against the dark background. Other than loose flakes, no topographical imprint is ever taken from the evaluated user's skin.

There are many cosmetic products sold which advertise certain skin benefits. Consumers usually cannot easily discern whether the claimed benefit is actually delivered. Even if perceivable, these actives impart an effect which may emerge only slowly over a period of time. Anti-aging actives are particularly illustrative. Facial fine lines and wrinkles can be minimized with actives such as alpha hydroxycarboxlic acids and/or retinol, to provide some visible improvement over an extended application period. They don't function instantaneously.

Accordingly, it is an advantage of the present invention to provide a low-cost simple test for a consumer to self-evaluate a cosmetic product's anti-aging benefits over a prolonged application period.

Another advantage of the present invention is to provide a low-cost simple self-evaluation tool for measuring changes in fine lines and wrinkles on the face or other aging susceptible parts of the human dermis.

A test kit for visualizing fine lines and wrinkles on a person's skin is provided which includes:

(i) a transparent strip provided with an adhesive on one surface thereof, the adhesive having sufficient tack to

maintain an imprint of fine lines and wrinkles after removal of the strip from the skin;

(ii) an imaging substrate with at least one darkened area for receiving the transparent strip; and

(iii) written instructions within the kit directing a consumer to place the adhesive surface of the strip against a skin area requiring measurement, to remove the strip and place same against the darkened area of the substrate, to repeat the aforesaid procedure at a future time followed by comparison of patterns resultant from the first and second strip applications to the skin.

Further, there is provided a method for evaluating efficacy of an anti-aging cosmetic product, the method including:

(A) providing a kit which includes:

(i) a transparent strip provided with an adhesive on one surface thereof, the adhesive having sufficient tack to maintain an imprint of fine lines and wrinkles after removal of the strip from the skin; and

(ii) an imaging substrate with at least one darkened area for receiving the transparent strip;

(B) applying the cosmetic product to the skin;

(C) placing the adhesive surface of the strip against the skin treated with the cosmetic product in step (B);

(D) removing the strip and placing same against one of the at least darkened areas of the substrate; and

(E) repeating steps (C) and (D) at a future time followed by comparison of patterns resultant from the first and second strip applications to the skin.

Additional advantages, features and benefits of the present invention will become more readily apparent from consideration of the drawing in which:

Fig. 1 is a first embodiment of an application strip according to the present invention;

Fig. 2 is a second embodiment of an application strip according to the present invention; and

Fig. 3 is the application strip of the embodiment shown in Fig. 1 subsequent to being placed on the skin, removed therefrom and mounted on a darkened field reading card.

Now there has been found a simple diagnostic test for allowing a consumer to evaluate the claimed effectiveness of anti-aging cosmetic products. Effectiveness of the anti-aging result can be monitored over a period of time through an inexpensive kit. The kit employs a transparent plastic strip coated with a transparent adhesive layer. When applied to a wrinkle prone area of the face or body, the adhesive layer accepts a topological wrinkle imprint.

Removal of the strip from this wrinkle area can then be imaged by placement onto a darkened, preferably black field.

Fig. 1 illustrates a transparent strip **2** adhesively attached to a release backing **4**. Strip **2** is kidney-shaped for placement adjacent either the right or left eye so as to cover the periorbital canphus (crow's foot area). This curvilinear shape allows for maximum coverage around an outer corner of the eye.

A tab **6** is attached to the strip **2**. The tab serves as a gripping structure. Separation of the strip from the release backing is facilitated by initiating removal at the tab. The opaque, preferably black coloration of the tab in contrast to the transparency of the strip signals to a user the difference of this area and cues the user to start lifting at that point.

Fig. 2 illustrates a second embodiment of a more elongate double lobed shape. Strip **2'** is removably adhered onto a release backing **4'**. Tab **6'** is oriented between both lobes of the strip and lies along an axis of symmetry bisecting the strip. The elongate nature of this embodiment even more than the first embodiment ensures that eyebrow hairs are not trapped under the adhesive when applied. It is undesirable to capture hairs. Any hairs caught in the adhesive may cause pain upon the strip being removed. This is considered an undesirable ouch factor.

In the procedure for testing efficacy of various anti-aging products, the strip is removed from its release backing. Thereupon it is placed along an area of skin to be imaged for its topography. Facial areas are primarily intended for

evaluation, and more particularly areas surrounding the eye. Subsequently, the strip is removed and placed upon an imaging card **8**. The dark, preferably black background of the card fixes the imprint while the transparent strip allows a view of that imprint. Fig. 3 illustrates the strip showing fine lines and wrinkles **10** being visualized against the black background of the imaging card.

Subsequent to a baseline analysis of fine lines and wrinkles, treatment is begun with a selected cosmetic anti-aging product. Treatment is continued for a period of time sufficient to allow the product to treat the signs of aging.

A second imaging field is placed adjacent to the first. After the treatment period of time, such as four weeks, another imprint is taken by a second transparent strip **21**. If the cosmetic product is properly functioning, fewer fine lines and wrinkles **11** will appear on the imaged second field. This procedure can then be repeated at six or eight weeks or at any further time interval. Each test will employ a fresh strip and new blackened area on the same or another image card.

In a preferred embodiment, the kit includes a dusting device. Most preferred is a dusting paper which is formed of a cellulosic substrate supporting a water-dispersible titanium dioxide embedded therein. This device is available from Leading Plus International, Taiwan. Prior to applying the adhesive transparent strip, the target area of the face is rubbed with the dusting paper. Powdered titanium dioxide is deposited thereon as an even film. Contact subsequently with the adhesive strip allows the latter to preferentially

adhere to powder deposit along ridges of the fine lines and wrinkles. An image in powder form of those fine lines and wrinkles is thereby obtained. Although a paper delivery system as described above is preferred, dusting powder can also be delivered from a shaker container similar to those for the dispensing of talcum powder.

Strips for use in the present invention will be transparent articles allowing observation of any patterns on a lower surface thereof. Suitable materials for the strip are plastics or cellulosics of any variety which can be formed as transparent films. Typically the plastic may be selected from polyethylene, polypropylene, polystyrene, polyester, polycarbonate, polyacrylate, polyvinyl chloride, polyvinyl alcohol and polybutene. Not only homopolymers but copolymers may be utilized for the strip material. Copolymers may be formed from such monomers as C_2-C_{10} olefins, vinyl chloride, acrylates and styrene constructed through free-radical polymerization. Condensation plastics may also be utilized in the formation of copolymers wherein the monomers may be selected from C_2-C_{10} dicarboxylic acids, C_2-C_{10} polyols, C_2-C_6 alkoxylates and combinations thereof. Polyethylene, polypropylene and polyester terephthalate are the preferred plastic substrates for forming the strip.

The thickness of the strip may range anywhere from 0.001 to 2 mm, preferably from 0.01 to 1 mm, more preferably from 0.1 to 0.5 mm and optimally from 0.5 to 0.8 mm.

The backing is typically made from a material and in a manner that is generally impervious to the adhesive. The

backing may be elastic or non-elastic but preferably the former. Flexibility allows easier removal of the adhesive strip. The backing can be formed from a variety of materials including organic polymers and cellulosics. A release coating such as a silicone may be placed on an upper surface of the backing to ease removal of the adjacent adhesive strip.

The adhesive will be a pressure sensitive type preferably as a layer with an average thickness from 0.01 mm to 3 mm, preferably from 0.05 mm to 2 mm, more preferably from 0.1 mm to 1 mm, optimally from 0.4 mm to 0.8 mm.

Pressure sensitive adhesives suitable for use in this invention are coatable adhesives. A wide variety of coatable pressure sensitive adhesives can be used, such as solvent coatable, hot melt coatable, as well as latex PSA's that are coatable out of water. Also, solventless curable adhesives (often referred to as 100% solids) can be used. Where thicker adhesive coatings are desired, it may be desirable either to apply multiple layers of the adhesive, hot melt coat, or to photopolymerize the adhesive in situ. Specific examples of pressure sensitive adhesives include acrylates, such as isooctyl acrylate/acrylic acid copolymers, tackified acrylates, and plasticizer-containing acrylates such as those disclosed in U.S. Pat. No. 4,946,742 (Landin); natural or synthetic rubber resins, including thermoset rubbers as well as thermoplastic rubbers and elastomers, such as nitrile rubbers (e.g., acrylonitrile-butadiene), styrene-butadiene, styrene-isoprene, styrene-butadiene-styrene, styrene-isoprene-styrene, and natural

rubber; silicone-based adhesives, such as polysiloxanes; polyolefins; polyesters; polyamides; and polyurethanes.

Particularly preferred are the acrylic type pressure sensitive adhesives. Most especially a pressure sensitive adhesive with a low tack value. These materials are commercially available under the Flexcon® brand.

Relative thickness of the strip to the adhesive may range from 1:200 to 200:1, preferably from 1:10 to 10:1, optimally from 2:1 o 1:2. Relative weight ratio of the strip to the adhesive may range from 1:200 to 200:1, preferably from 1:10 to 10:1, optimally from 2:1 to 1:2.

Anti-aging cosmetic products of this invention may contain one or more anti-aging actives and a cosmetic carrier. Illustrative actives are alpha- and beta-hydroxyacids, retinoids (e.g. retinol and retinyl palmitate), ascorbic acid and derivatives (e.g. ascorbyl tetraisopalmitate, magnesium ascorbyl phosphate), lipoic acid, green tea, tocopherol and derivatives, dihydroepiandrosterone (DHEA) and combinations thereof. Amounts may range from 0.00001 to 10% by weight of the product. Carriers may include water, silicones, natural and synthetic esters (e.g. triglycerides, lanolin and fatty acid esters), hydrocarbons, propellants, thickeners, surfactants and combinations thereof. Amounts may range from 5 to 99.9% by weight of the product.

Anti-aging cosmetic products may take various forms including creams, lotions, wipes, aerosols, powders and transdermal patches.

Except in the operating and comparative examples, or where otherwise explicitly indicated, all numbers in this description indicating amounts of material ought to be understood as modified by the word "about".

The term "comprising" is meant not to be limiting to any subsequently stated elements but rather to encompass non-specified elements of major or minor functional importance. In other words the listed steps, elements or options need not be exhaustive. Whenever the words "including" or "having" are used, these terms are meant to be equivalent to "comprising" as defined above.

All parts, percentages and proportions referred to herein and in the appended claims are by weight unless otherwise illustrated.

CLAIMS

1. A test kit for visualizing fine lines and wrinkles on a person's skin comprising:

(i) a transparent strip provided with an adhesive on one surface thereof, the adhesive having sufficient tack to maintain an imprint of fine lines and wrinkles after removal of the strip from the skin;

(ii) an imaging substrate with at least one darkened area for receiving the transparent strip; and

(iii) written instructions within the kit directing a consumer to place the adhesive surface of the strip against a skin area requiring measurement, to remove the strip and place same against the darkened area of the substrate, to repeat the aforesaid procedure at a future time followed by comparison of patterns resultant from the first and second strip applications to the skin.

2. The kit according to claim 1 wherein the adhesive is a pressure sensitive adhesive.

3. The kit according to claim 2 wherein the adhesive is an acrylate polymer.

4. A method for evaluating efficacy of an anti-aging cosmetic product, the method comprising:

(A) providing a kit which comprises:

(i) a transparent strip provided with an adhesive on one surface thereof, the adhesive having sufficient tack to maintain an imprint of fine lines and wrinkles after removal of the strip from the skin; and

(ii) an imaging substrate with at least one darkened area for receiving the transparent strip;

(B) applying the cosmetic product to the skin;

(C) placing the adhesive surface of the strip against the skin treated with the cosmetic product in step (B);

(D) removing the strip and placing same against one of the at least darkened areas of the substrate; and

(E) repeating steps (C) and (D) at a future time followed by comparison of patterns resultant from the first and second strip applications to the skin.

5. The method according to claim 4 further comprising applying a dusting powder against the skin prior to placement thereon of the adhesive surface of the strip.

6. The method according to claim 5 wherein the dusting powder is carried to the skin on a paper.

7. The method according to claim 5 wherein the dusting powder is a water-dispersible titanium dioxide.

Fig.1.

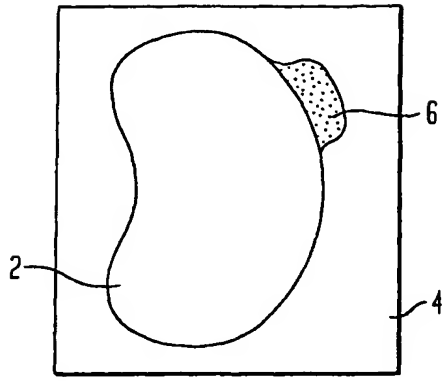


Fig.2.

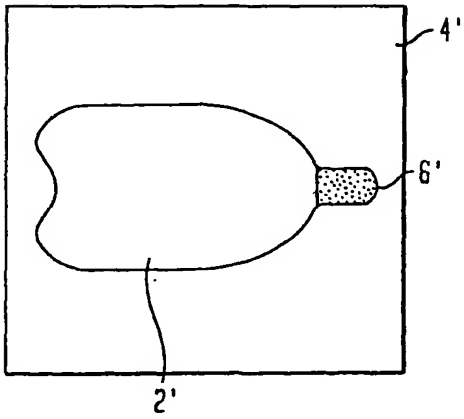
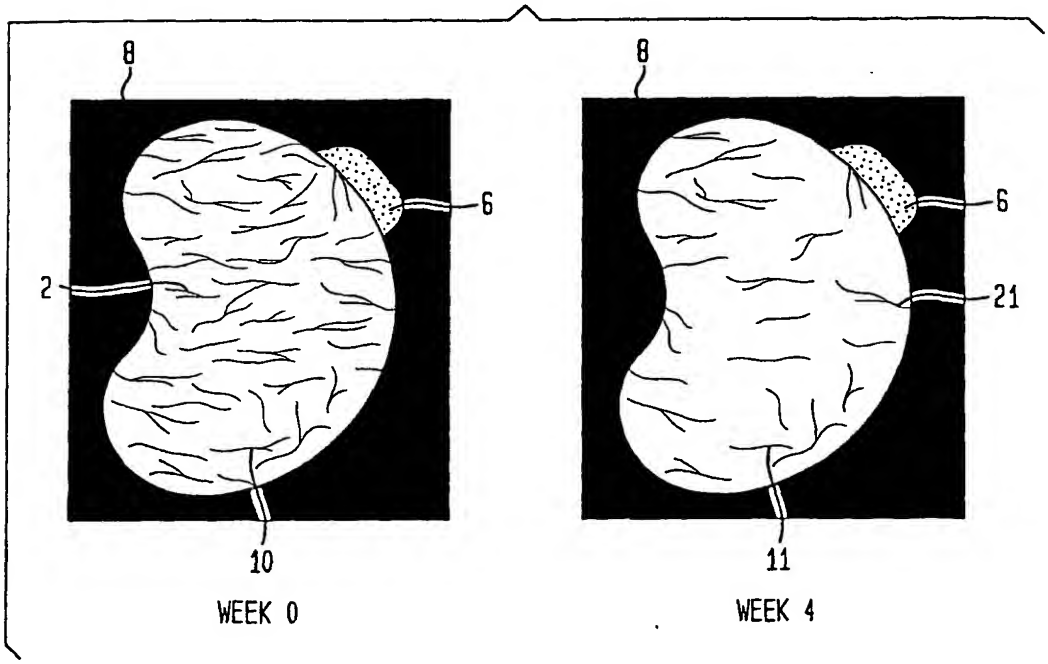


Fig.3.



INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/EP 02/05093

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B5/103

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	FR 2 063 743 A (BOUYER HENRI) 9 July 1971 (1971-07-09) page 1, line 9-23 page 1, line 27-30; figures A,B	1-7
A	US 5 684 573 A (KHAZAKA GABRIEL ET AL) 4 November 1997 (1997-11-04) column 1, line 8-15 column 3, line 15 -column 4, line 15; figures 2-5	1-4

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 September 2002	12/09/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Dhervé, G

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INTERNATIONAL SEARCH REPORT

information on patent family members

Inte nal Application No
PCT/EP 02/05093

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US 5088502	A	18-02-1992	NONE		
FR 2063743	A	09-07-1971	FR	2063743 A5	09-07-1971
US 5684573	A	04-11-1997	DE	9303102 U1	05-08-1993
			DE	59405037 D1	19-02-1998
			WO	9420019 A1	15-09-1994
			EP	0687162 A1	20-12-1995
			JP	8509624 T	15-10-1996

Newtype
COMMUNICATIONS

e-mail: newtype@compuserve.com

445 Fifth Avenue
New York, New York 10016
Phone 212/686-5555
Fax 212/686-5414

STATE OF NEW YORK)
CITY OF NEW YORK :
COUNTY OF NEW YORK)

CERTIFICATION

This is to certify that the following is, to the best of our knowledge and belief, a true and accurate translation into ENGLISH of the attached document(s) relating to:

Process for evaluation of the relief of the skin by means of a substrate provided with an adhesive surface

written in FRENCH.

NEWTYPE COMMUNICATIONS, INC.

Sworn to and subscribed before me
this 8th day of October, 2002.

NOTARY PUBLIC

MICHAEL A. PRESTIA
Notary Public, State of New York
No. 41-3157725
Qualified in Queens County
Commission Expires May 31, 2003

Process for evaluation of the relief of the skin by means of a substrate provided with an adhesive surface

The present invention relates to a process for evaluation of the relief of the skin, especially its aging.

To visualize the signs of aging of the skin, it is known that a skin print can be made by means of a silicone-containing malleable compound, such as that sold under the trade name *Silflow*. Such a process is quite tricky and costly to operate, because it is necessary to use a relatively complex measuring instrument, in turn necessitating the presence of specially trained personnel skilled in taking prints. This process is not suitable for operation by the consumers themselves or for walk-in customers, as at a sales outlet.

It is also known that the degree of dryness of the skin can be determined by sampling corneocytes from the stratum corneum by means of an adhesive substrate such as described in US Patent 5088502 and sold by the *Cuderm Corporation* under the registered trademark *D-Squame*.

A need exists to evaluate the relief of the skin, especially its state of aging, in a manner that is simple and inexpensive while nevertheless being sufficiently precise.

The present invention meets this need by virtue of a new process containing the following steps:

- applying a substrate provided with an adhesive surface onto a test zone of the skin,
- removing the substrate,
- evaluating the image formed on the adhesive surface, the said image resulting from the modification of the appearance of the adhesive surface substantially at the places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines.

The applicant has discovered surprisingly that the use of a substrate provided with an adhesive surface, such as described, for example, in US Patent 5088502, makes it possible to visualize the relief and especially the signs of aging, in particular the lines and wrinkles present at the surface of the skin, by making a two-dimensional print of the surface of the skin. The

adhesive substrate, by sticking to only the "plateaus" of the skin, acts in the manner of an inkpad and makes it possible to reconstitute the condition of the surface as a negative. The modification of the appearance of the adhesive surface may result from the presence on its surface of particles stripped from the skin, for example of dead cells or other impurities, and may also result from the deposition of particles of adhesive on the skin at places where the adhesive surface has adhered to the skin.

The adhesive substrate used can be transparent. The examination of the adhesive substrate can then be accomplished by placing it in front of a background of dark color. For good visualization of the image, the adhesive substrate is preferably placed on the background of dark color without allowing it to adhere thereto.

The substrate is advantageously provided with a gripping tab extending from at least one side of the adhesive surface.

The test zone can be chosen from among the following regions:

- crow's foot region
- forehead,
- corner of the mouth,

although this list is not limitative.

In one embodiment of the invention, the image formed on the adhesive surface is compared with reference images corresponding to various degrees of aging of the skin, in order to deduce therefrom the degree of aging of the skin of the person being tested.

These reference images may be printed. Alternatively, these reference images may be displayed on the monitor of a computer.

The comparison between the image formed on the substrate and the reference images can be performed with the naked eye. Alternatively or additionally, the comparison between the image formed on the substrate and the reference images can be performed by automated techniques.

The image formed on the adhesive surface of the substrate can be analyzed remotely. Specifically, the image can be digitized before being remotely analyzed, so that it can be transmitted in the form of a file, for example.

It is possible to perform processing of the image formed on the adhesive surface for the

purpose of determining characteristic parameters of the test zone. Such processing can consist of counting the wrinkles or lines, as well as of measuring their dimensions and their orientation.

In one embodiment of the invention, the images formed on different substrates applied successively to the test zone are recorded. These recorded images can then be compared in order, for example, to demonstrate the effect of a treatment or the need for a treatment.

The recorded images can be displayed simultaneously to allow a person to appreciate the effects of a treatment or to become aware of the need for a treatment.

Another object of the invention is an information-processing system, especially an Internet server, designed to:

a) receive images in digital form, each of these images corresponding to the modification of the appearance of an adhesive surface that has been applied onto the skin, substantially at the places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines,

b) analyze these images.

The information-processing system is advantageously designed to determine, after analysis of an image, the degree of aging of the corresponding skin.

This information-processing system can also be designed to:

a) establish a diagnosis in view of the analysis of each received image, and

b) on the basis of this diagnosis, select an appropriate care product from among a predetermined set of products.

The information-processing system can also be designed to send, to the address of the person who has transmitted an image, a letter informing him of the result of the analysis and if necessary recommending a care product to him.

Yet another object of the invention is a cosmetic treatment process comprising the following steps:

a) applying a substrate provided with an adhesive surface onto a test zone of the skin,

b) removing the substrate,

c) analyzing the image formed on the adhesive surface of the substrate, this image resulting from the modification of the appearance of the adhesive surface substantially at the

places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines,

d) recommending a care product in view of this diagnosis,

e) applying the recommended product on the skin.

The invention also has as its object a process for determining the efficacy of a cosmetic or care product, especially an anti-wrinkle product, comprising the following steps:

a) applying a substrate provided with an adhesive surface onto a test zone of the skin,

b) removing the substrate,

c) applying on the test zone a product having an action on the wrinkles,

d) applying a new substrate provided with an adhesive surface onto the test zone, and removing this substrate,

e) comparing the images formed on the substrates before and after application of the product, in order to deduce therefrom useful information about the efficacy of the product, each image resulting from the modification of the appearance of the adhesive surface, such a modification occurring substantially at the places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines.

The invention also has as an object an atlas with which the relief of the skin can be evaluated, especially its degree of aging, the atlas comprising a plurality of reference images, each representative of the image formed on a substrate provided with an adhesive zone, after application on a test zone of the skin, these images having patterns, especially lines or points indicative of the presence of wrinkles, lines or pores on the test zone and corresponding, for example, to different degrees of aging of the skin.

The invention also has as an object a kit containing a skin-treatment product, especially an anti-wrinkle product, at least one substrate provided with an adhesive surface intended to be applied onto a test zone of the skin, and an atlas that permits, by comparison with the image formed on the adhesive surface of the substrate, evaluation of the relief of the skin, especially its degree of aging.

Other characteristics and advantages of the present invention will become clear from reading the detailed description hereinafter of non-limitative practical examples of the invention and from examination of the attached drawing, wherein:

- Fig. 1 shows the application of a substrate onto a test zone situated at the crow's foot region,

- Fig. 2 illustrates the substrate after removal from the skin and on the point of being placed in front of a dark background in order to reveal the modification in appearance of the adhesive surface,

- Fig. 3 is a block diagram illustrating different steps of a process according to a practical example of the invention,

- Fig. 4 illustrates an atlas permitting comparison of the image formed on the substrate with reference images,

- Fig. 5 shows the display of an atlas on the monitor of a computer permiting comparison of the image formed on the substrate with images used for reference purposes,

- Figs. 6 to 8 are block diagrams illustrating different processes according to practical examples of the invention,

- Fig. 9 illustrates a kit containing an anti-wrinkle product, a plurality of adhesive substrates and a package on which there is printed an atlas, and

- Fig. 10 illustrates a substrate having an adhesive surface of circular contour.

Fig. 1 illustrates an adhesive substrate 1, which is known in itself and sold, for example, by the *Cuderm Corporation* under the registered trademark *D-Squame*.

This substrate comprises an adhesive surface 2 and a non-adhesive tab 3, by means of which adhesive substrate 1 can be gripped in such a way that the fingers do not come into contact with adhesive surface 2. The adhesive composing adhesive surface 2 is, for example, a solid adhesive, and can be applied in the form of a fixed layer of substantially uniform thickness.

In the described example, substrate 1 is transparent.

Before use it is coated with a removable protective film, not illustrated, that covers adhesive surface 2.

Substrate 1 is intended to be applied onto the skin without excessive pressure, on a test

zone T, situated, for example, in the crow's foot region, as shown. Test zone T has been treated beforehand with makeup remover and cleaned.

The particles such as dead cells present on the surface of the skin and situated at the level of the "plateaus" adhere to adhesive surface 2, whereas the particles situated in the sunken zones formed between the "plateaus" by the wrinkles or lines do not come into effective contact with adhesive surface 2, with the result that, when substrate 1 is removed, there is obtained on adhesive surface 2 a negative image that reveals the wrinkles or lines present in test zone T. Adhesive particles may also remain on the skin at the level of the "plateaus", thus contributing to the modification in appearance of the adhesive surface.

To highlight the image formed in this way on adhesive surface 2, substrate 1 can be placed in front of an opaque background 4 of dark color such as black.

The different steps of use of substrate 1 are summarized in the block diagram of Fig. 3.

To begin with, substrate 1 is applied onto the skin. This corresponds to step 10 of Fig. 3.

Substrate 1 is then removed in step 11 and examined visually in step 12.

This examination advantageously includes a step 13, during which the image formed on the substrate is compared with reference images of an atlas 20 or comparison scale, such as that illustrated in Fig. 4.

Images 21 correspond to different degrees of aging of the skin.

Thus image 21 of the skin corresponds, for example, to the image that would be obtained on substrate 1 by applying it onto the crow's foot region of a person with young skin. The other images 21 correspond to the images that would be obtained after application of substrates 1 on skins having increasingly greater degrees of aging. Preferably, as shown, the atlas is provided with an alphanumeric code opposite each image 21, for the purpose in particular of permitting identification of the image 21 found, the letter A in the illustrated example corresponding to the absence of pronounced signs of aging, while the letter D corresponds to the greatest degree of aging, the images 21 identified by letters B and C corresponding to intermediate degrees.

Atlas 20 can be created by printing a substrate, for example.

Alternatively, the images can be displayed on monitor E of a computer, as illustrated in Fig. 5.

Atlas 20 can advantageously be provided with a dark zone 23, in front of which substrate 1 is placed after application on the skin, in such a way as to highlight the modification in appearance of adhesive surface 2.

When monitor E is used, the images 21 can be displayed simultaneously with a dark zone 23, in front of which there is placed substrate 1.

Alternatively, substrate 1 can be positioned at a predetermined place 24 of the monitor, where there are successively displayed images intended to permit the observer to determine the degree of aging of the skin by observing the monitor through substrate 1.

Fig. 6 summarizes different steps of a process with which the efficacy of a treatment can be determined.

In first step 30 of this process, a first evaluation of the skin is performed by means, for example, of the process described with reference to Fig. 3.

In step 31 there is then applied a product such as an anti-wrinkle product, which has an action on the wrinkles or lines present in the test zone on which substrate 1 has been applied.

After one or more applications of the product, a further evaluation of the test zone is performed in step 32.

This new evaluation is performed in the same manner as the first, with a new substrate 1, by means, for example, of the process of Fig. 3.

Thereafter the results of the different evaluations are compared in step 33 and the efficacy of the treatment is determined in step 34.

The process of Fig. 6 can be used by the consumer himself or by a professional in a specialized center or at a sales outlet, for example.

The image formed on the substrate can be analyzed remotely, for example in the manner illustrated in Fig. 7.

In first step 40 of this process, adhesive substrate 1 is applied onto a test zone, and in step 41, this adhesive substrate is sent to a diagnostic center which, in step 42, remotely establishes a diagnosis. In step 43, the person being tested can receive the result of the analysis, accompanied

by a prescription for an anti-wrinkle product, for example.

After application on the skin, substrate 1 can be sent as is to the diagnostic center.

As shown in Fig. 8, it is also possible, in first step 50, to record the image formed on substrate 1 by means of a camera or scanner, then in step 51 to send this image in the form of a file to a diagnostic center by connecting, for example, to an Internet site. The diagnosis can be established automatically in step 52, by automatic comparison of images by means of a shape-recognition engine, for example, then the result of the evaluation is sent in step 53 to the person being tested, by conventional mail or by electronic mail.

The Internet server to which the images are sent can be designed to store all the images received, so that thereafter it can, for example, display these images simultaneously or successively, compare them and determine the efficacy of a treatment or decide on the need for a treatment, for example.

One or more substrates can be sold with an anti-wrinkle product 5 and its package 6 in the form of a kit.

In this case, package 6 advantageously contains a set of reference images 21 forming a self-evaluation atlas, as well as a dark zone 23 to facilitate observation of the image formed on adhesive substrate 1.

Of course, the invention is not limited to the examples given in the foregoing.

In particular, substrate 1 can be implemented in multiple forms, with an adhesive surface having a circular contour, as illustrated in Fig. 10, and the substrate may be non-transparent and of dark color, for example, in order to obviate the need for placing it in front of a dark zone.

Although the invention has been described mainly as regards its application to the evaluation of reliefs of the skin such as wrinkles or lines, the invention is also applicable to the evaluation of reliefs of the skin such as pores, scars, lines of the palm and fingerprints.

CLAIMS

1. A process for evaluation of the relief of the skin, containing the following steps:

- applying a substrate (1) provided with an adhesive surface (2) onto a test zone (T) of the skin,

- removing the substrate,

- evaluating an image formed on the adhesive surface (2) of the substrate (1), the said image resulting from the modification of an appearance of the adhesive surface substantially at the places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines.

2. A process according to claim 1, characterized by the fact that the degree of aging of the skin is evaluated in view of the image formed on the substrate (1).

3. A process according to one of the preceding claims, characterized by the fact that the substrate (1) is transparent.

4. A process according to the preceding claim, characterized by the fact that the examination of the substrate is performed by placing it in front of a background (4; 23) of dark color.

5. A process according to claim 4, characterized by the fact that the substrate (1) is placed on the background (4; 23) of dark color without making it adhere thereto.

6. A process according to any one of the preceding claims, characterized by the fact that the substrate (1) is provided with a gripping tab (3) extending from at least one side of the adhesive surface (2).

7. A process according to any one of the preceding claims, characterized by the fact that the said test zone (T) is chosen from among the following regions:

- crow's foot region

- forehead,

- corner of the mouth.

8. A process according to any one of the preceding claims, characterized by the fact that the image formed on the adhesive surface (2) is compared with reference images (21) corresponding to various degrees of aging of the skin.

9. A process according to the preceding claim, characterized by the fact that the reference images (21) are printed.

10. A process according to claim 8, characterized by the fact that the reference images (21) are displayed on the monitor (E) of a computer.

11. A process according to one of claims 8 to 10, characterized by the fact that the comparison between the image formed on the adhesive surface (2) and the reference images (21) is performed with the naked eye.

12. A process according to one of claims 8 to 10, characterized by the fact that the comparison between the image formed on the adhesive surface (2) and the reference images (21) is performed by automated techniques.

13. A process according to any one of the preceding claims, characterized by the fact that the image formed on the adhesive surface (2) is analyzed remotely

14. A process according to the preceding claim, characterized by the fact that the image formed on the adhesive surface (2) is digitized before being remotely analyzed.

15. A process according to claim 14, characterized by the fact that the image formed on the adhesive surface (2) is processed for the purpose of determining characteristic parameters of the test zone.

16. A process according to any one of the preceding claims, characterized by the fact that the images formed on different substrates (1) applied successively onto the test zone (T) are recorded.

17. A process according to the preceding claim, characterized by the fact that these recorded images are compared, especially in order to demonstrate the effect of a treatment or the need for a treatment.

18. A process according to claim 16 or 17, characterized by the fact that the recorded images are displayed simultaneously to allow a person to appreciate the effects of a treatment or to become aware of the need for a treatment.

19. An information-processing system, especially an Internet server, designed to:

a) receive images in digital form, each of these images corresponding to the modification of the appearance of an adhesive surface (2) that has been applied to the skin, such a modification occurring substantially at the places where the said adhesive surface (2) has been in effective contact with the skin, the said adhesive surface (2) not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines,

b) analyze these images.

20. An information-processing system according to the preceding claim, characterized by

the fact that it is designed to determine, after analysis of an image, the degree of aging of the corresponding skin.

21. An information-processing system according to one of claims 19 and 20, characterized by the fact that it is designed to:

a) establish a diagnosis in view of the analysis of each image, and

b) on the basis of this diagnosis, select an appropriate care product from among a predetermined set of products.

22. An information-processing system according to one of claims 19 to 21, characterized by the fact that it is designed to send, to the address of the person who has transmitted an image, a letter informing him of the result of the analysis and if necessary recommending a care product to him.

23. A cosmetic treatment process, comprising the following steps:

a) applying a substrate (1) provided with an adhesive surface (2) onto a test zone (T) of the skin,

b) removing the substrate,

c) analyzing the image formed on the adhesive surface (2) of the substrate (1), this image resulting from the modification of the appearance of the adhesive surface substantially at the places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines,

d) recommending a care product in view of this diagnosis,

e) applying the recommended product on the skin.

24. A process for determining the efficacy of a cosmetic or care product, especially an anti-wrinkle product, characterized by the fact that it comprises the following steps:

a) applying a substrate (1) provided with an adhesive surface (2) onto a test zone (T) of the skin,

b) removing the substrate,

c) applying on the test zone (T) a product having an action on the wrinkles,

d) applying a new substrate (1) provided with an adhesive surface (2) onto the test zone, and removing this substrate,

e) comparing the images formed on the substrates before and after application of the product, in order to deduce therefrom useful information about the efficacy of the product, each

image resulting from the modification of the appearance of the adhesive surface (2) substantially at the places where the said adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines.

25. An atlas (20) with which the relief of the skin can be evaluated, especially its degree of aging, the atlas being characterized by the fact that it comprises a plurality of reference images (21), each representative of the image formed on a substrate (1) provided with an adhesive zone (2) after application on a test zone of the skin, these images having patterns, especially lines or points indicative of the presence of wrinkles, lines or pores on the test zone and corresponding, for example, to different degrees of aging of the skin.

26. A kit containing a skin-treatment product (5), especially an anti-wrinkle product, at least one substrate (1) provided with an adhesive surface (2) intended to be applied onto a test zone (T) of the skin, and an atlas that permits, by comparison with the image formed on the adhesive surface (2) of the substrate, evaluation of the relief of the skin.

ABSTRACT

L'OREAL

Process for evaluation of the relief of the skin by means of a substrate provided with an adhesive surface.

The invention relates to a process for evaluation of the relief of the skin, comprising the following steps:

- applying a substrate (1) provided with an adhesive surface (2) onto a test zone (T) of the skin,
- removing the substrate,
- evaluating an image formed on the adhesive surface (2) of the substrate (1), the said image resulting from the modification of the appearance of the adhesive surface substantially at the places where the adhesive surface has been in effective contact with the skin, the said adhesive surface not having been in appreciable contact with the sunken zones of the skin, such as the wrinkles or lines.

FIG. 1

Procédé d'évaluation du relief de la peau au moyen d'un support comportant une surface adhésive

La présente invention concerne un procédé d'évaluation du relief de la peau, notamment de son vieillissement.

Il est connu, pour visualiser les signes de vieillissement de la peau, de réaliser une empreinte de cette dernière au moyen d'une matrice malléable siliconée, par exemple celle commercialisée sous la dénomination commerciale *Silflow*. Un tel procédé est assez délicat et coûteux à mettre en œuvre, car il est nécessaire d'utiliser un appareillage de mesure relativement complexe, ce qui impose la présence d'un personnel spécialement formé et entraîné à la prise d'empreinte. Ce procédé est inadapté à une mise en œuvre par les consommateurs eux-mêmes ou en ambulatoire, par exemple sur un point de vente.

Il est connu, par ailleurs, de déterminer le degré de sécheresse de la peau en prélevant des cornéocytes au niveau du stratum cornéum au moyen d'un support adhésif tel que décrit dans le brevet US 5 088 502 et commercialisé par la société *Cuderm Corporation* sous la marque déposée *D-Squame*.

Il existe un besoin pour évaluer le relief de la peau, notamment son état de vieillissement, d'une manière simple et peu coûteuse, mais suffisamment précise néanmoins.

La présente invention répond à ce besoin, grâce à un nouveau procédé comportant les étapes suivantes :

- appliquer un support comportant une surface adhésive sur une zone de test de la peau,
- retirer le support,
- évaluer l'image formée sur la surface adhésive, ladite image résultant de la modification de l'aspect de la surface adhésive essentiellement aux endroits où ladite surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules.

La société déposante a constaté que, de manière surprenante, l'utilisation d'un support comportant une surface adhésive, tel que décrit par exemple dans le brevet US 5 088 502, permet de visualiser le relief et notamment les signes de vieillissement, en particulier les ridules et rides présentes à la surface de la peau, en réalisant une empreinte bi-dimensionnelle de la surface de la peau. Le support adhésif, en ne collant qu'aux

"plateaux" de la peau, agit à la façon d'un tampon encreur et permet de restituer l'état de surface comme un négatif. La modification de l'aspect de la surface adhésive peut résulter de la présence à sa surface de particules arrachées à la peau, par exemple des cellules mortes ou autres impuretés, et peut résulter aussi du dépôt de particules d'adhésif sur la peau aux endroits où la surface adhésive a adhéré à la peau.

Le support adhésif utilisé peut être transparent. L'examen du support adhésif peut alors s'effectuer en le disposant devant un fond de couleur foncée. Pour une bonne visualisation de l'image, le support adhésif est de préférence déposé sur le fond de couleur foncée sans le faire adhérer à ce dernier.

Le support comporte avantageusement une languette de préhension débordant d'un côté au moins de la surface adhésive.

La zone de test peut être choisie parmi les régions suivantes :

- patte d'oie,
- front,
- coin de la bouche,

cette liste n'étant pas limitative.

Dans une mise en œuvre de l'invention, on compare l'image formée sur la surface adhésive avec des images de référence correspondant à divers degrés de vieillissement de la peau, afin d'en déduire le degré de vieillissement de la peau de la personne ayant subi le test.

Ces images de référence peuvent être imprimées. En variante, ces images de référence peuvent être affichées à l'écran d'un ordinateur.

La comparaison entre l'image formée sur le support et les images de référence peut être effectuée à l'œil nu. En variante, ou additionnellement, la comparaison entre l'image formée sur le support et les images de référence peut être effectuée de manière automatisée.

L'image formée sur la surface adhésive du support peut être analysée à distance. L'image peut notamment être numérisée avant d'être analysée à distance, afin d'être envoyée sous la forme d'un fichier, par exemple.

Il est possible d'effectuer un traitement de l'image formée sur la surface adhésive en vue de déterminer des paramètres caractéristiques de la zone de test. Un tel traitement peut comporter un comptage des rides ou ridules, une mesure de leurs

dimensions et de leur orientation.

Dans une mise en œuvre de l'invention, on enregistre les images formées sur différents supports appliqués successivement sur la zone de test. Ces images enregistrées peuvent être comparées ensuite afin, par exemple, de mettre en évidence l'effet d'un traitement ou le besoin d'un traitement.

Les images enregistrées peuvent être affichées simultanément pour permettre à une personne de percevoir les effets d'un traitement ou de prendre conscience du besoin d'un traitement.

L'invention a encore pour objet un système informatique, notamment un serveur Internet, agencé pour :

a) recevoir des images sous forme numérique, ces images correspondant chacune à la modification de l'aspect d'une surface adhésive ayant été appliquée sur la peau, essentiellement aux endroits où ladite surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules,

b) analyser ces images.

Le système informatique est avantageusement agencé pour déterminer, après analyse d'une image, le degré de vieillissement de la peau correspondant.

Ce système informatique peut en outre être agencé pour :

a) établir au vu de l'analyse de chaque image reçue un diagnostic, et

b) à partir de ce diagnostic, sélectionner un produit de soins approprié parmi un ensemble prédéterminé de produits.

Le système informatique peut encore être agencé pour envoyer à l'adresse de la personne ayant transmis une image un courrier l'informant du résultat de l'analyse et lui préconisant éventuellement un produit de soins.

L'invention a encore pour objet un procédé de traitement cosmétique comprenant les étapes suivantes :

a) appliquer un support comportant une surface adhésive sur une zone de test de la peau,

b) retirer le support,

c) analyser l'image formée sur la surface adhésive du support, cette image résultant de la modification de l'aspect de la surface adhésive essentiellement aux endroits

où ladite surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules,

d) préconiser un produit de soins au vu de ce diagnostic,

e) appliquer le produit préconisé sur la peau.

L'invention a encore pour objet un procédé pour déterminer l'efficacité d'un produit cosmétique ou de soins, notamment un produit antirides, comportant les étapes suivantes :

a) appliquer un support comportant une surface adhésive sur une zone de test de la peau,

b) retirer le support,

c) appliquer sur la zone de test un produit ayant une action sur les rides,

d) appliquer un nouveau support comportant une surface adhésive sur la zone de test, retirer ce support,

e) comparer les images formées sur les supports avant et après l'application du produit, afin d'en tirer une information utile sur l'efficacité du produit, chaque image résultant de la modification de l'aspect de la surface adhésive, une telle modification ayant lieu essentiellement aux endroits où ladite surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules.

L'invention a encore pour objet un atlas permettant d'évaluer le relief de la peau, notamment son degré de vieillissement, comportant une pluralité d'images de référence représentative chacune de l'image formée sur un support comportant une zone adhésive, après application sur une zone de test de la peau, ces images présentant des motifs, notamment des lignes ou des points traduisant la présence de rides, de ridules ou de pores sur la zone de test et correspondant par exemple à différents degrés de vieillissement de la peau.

L'invention a encore pour objet un kit comportant un produit de traitement de la peau, notamment un produit antirides, au moins un support comportant une surface adhésive destinée à être appliquée sur une zone de test de la peau et un atlas permettant, par comparaison avec l'image formée sur la surface adhésive du support, d'évaluer le relief de la peau, notamment son degré de vieillissement.

D'autres caractéristiques et avantages de la présente invention ressortiront à la lecture de la description détaillée qui va suivre, d'exemples de mise en œuvre non limitatifs de l'invention, et à l'examen du dessin annexé, sur lequel :

- la figure 1 illustre l'application d'un support sur une zone de test située au niveau de la patte d'oie,
- la figure 2 représente le support une fois retiré de la peau et sur le point d'être placé devant un fond sombre permettant de mettre en évidence la modification de l'aspect de la surface adhésive,
- la figure 3 est un schéma en blocs illustrant différentes étapes d'un procédé conforme à un exemple de mise en œuvre de l'invention,
- la figure 4 représente un atlas permettant de comparer l'image formée sur le support avec des images de référence,
- la figure 5 illustre l'affichage sur l'écran d'un ordinateur d'un atlas permettant de comparer l'image formée sur le support avec des images servant de référence,
- les figures 6 à 8 sont des schémas en blocs illustrant différents procédés conformes à des exemples de mise en œuvre de l'invention,
- la figure 9 représente un kit comportant un produit antirides, une pluralité de supports adhésifs et un emballage sur lequel est imprimé un atlas, et
- la figure 10 représente un support ayant une surface adhésive de contour circulaire.

On a représenté sur la figure 1 un support adhésif 1, connu en lui-même, par exemple commercialisé par la société *Cuderm Corporation* sous la marque déposée *D-Squame.*

Ce support comprend une surface adhésive 2 et une languette 3 non adhésive permettant la préhension du support adhésif 1 sans contact des doigts avec la surface adhésive 2. L'adhésif constituant la surface adhésive 2 est par exemple un adhésif solide et peut s'étendre sous la forme d'une couche figée d'épaisseur sensiblement uniforme.

Le support 1 est transparent, dans l'exemple décrit.

Il est revêtu, avant l'utilisation, d'une pellicule de protection amovible, non représentée, couvrant la surface adhésive 2.

Le support 1 est destiné à être appliqué sur la peau, sans qu'une pression trop

forte ne soit exercée, sur une zone de test T, située par exemple dans la région de la patte d'oie, comme illustré. La zone de test T a été préalablement démaquillée et nettoyée.

Les particules présentes à la surface de la peau, par exemple des cellules mortes, et situées au niveau des "plateaux" adhèrent à la surface adhésive 2 tandis que les particules situées dans les creux formés entre les "plateaux" par les rides ou ridules ne viennent pas en contact effectif avec la surface adhésive 2, de sorte que lorsque le support 1 est retiré, on obtient sur la surface adhésive 2 une image en négatif faisant apparaître les rides ou ridules présentes dans la zone de test T. Des particules d'adhésif peuvent également rester sur la peau au niveau des « plateaux », ce qui contribue à la modification de l'aspect de la surface adhésive.

Pour mettre en évidence l'image ainsi formée sur la surface adhésive 2, on peut amener le support 1 devant un fond 4 opaque et de couleur foncée, par exemple noir.

Les différentes étapes d'utilisation du support 1 sont résumées dans le schéma en blocs de la figure 3.

On commence par appliquer sur la peau le support 1, ce qui correspond à l'étape 10 de la figure 3.

Ensuite, le support 1 est retiré à l'étape 11 et l'on procède à l'étape 12 à son examen visuel.

Cet examen comporte avantageusement une étape 13 au cours de laquelle l'image formée sur le support est comparée avec des images de référence d'un atlas 20 ou échelle de comparaison, tel que celui représenté à la figure 4.

Les images 21 correspondent à différents degrés de vieillissement de la peau.

Ainsi, l'image 21 du haut correspond par exemple à l'image que l'on obtiendrait sur le support 1 en appliquant celui-ci sur la patte d'oie d'une personne dont la peau est jeune. Les autres images 21 correspondent aux images que l'on obtiendrait après application des supports 1 sur des peaux ayant des degrés de vieillissement de plus en plus importants. De préférence, comme illustré, l'atlas comporte un identifiant alphanumérique en regard de chaque image 21, afin notamment de permettre de repérer l'image 21 retenue, la lettre A correspondant dans l'exemple représenté à l'absence de signes prononcés de vieillissement tandis que la lettre D correspond au degré de vieillissement le plus important, les images 21 repérées par les lettres B et C correspondant à des degrés intermédiaires.

L'atlas 20 peut être réalisé par impression d'un support, par exemple.

En variante, les images peuvent être affichées à l'écran E d'un ordinateur, comme illustré sur la figure 5.

L'atlas 20 peut avantageusement comporter une zone sombre 23, devant laquelle est disposé le support 1 après application sur la peau, de manière à mettre en évidence la modification de l'aspect de la surface adhésive 2.

Lorsqu'un écran E est utilisé, les images 21 peuvent être affichées simultanément avec une zone sombre 23, devant laquelle est disposé le support 1.

En variante, le support 1 peut être positionné en un emplacement prédéterminé 24 de l'écran, au niveau duquel sont successivement affichées des images destinées à permettre à l'observateur de déterminer, en observant l'écran au travers du support 1, le degré de vieillissement de la peau.

La figure 6 résume différentes étapes d'un procédé permettant de déterminer l'efficacité d'un traitement.

Dans ce procédé, on commence à l'étape 30 par effectuer une première évaluation de la peau, au moyen par exemple du procédé décrit en référence à la figure 3.

On applique ensuite à l'étape 31 un produit, par exemple un produit antirides, ayant une action sur les rides ou ridules présentes dans la zone de test sur laquelle a été appliqué le support 1.

On procède, après une ou plusieurs applications du produit, à l'étape 32, à une nouvelle évaluation de la zone de test.

Cette nouvelle évaluation est effectuée de la même manière que la première, avec un nouveau support 1, au moyen par exemple du procédé de la figure 3.

On procède ensuite à l'étape 33 à la comparaison des résultats des différentes évaluations afin de déterminer à l'étape 34 l'efficacité du traitement.

Le procédé de la figure 6 peut être mis en œuvre par le consommateur lui-même ou par un professionnel dans un centre spécialisé ou sur un lieu de vente, par exemple.

L'analyse de l'image formée sur le support peut être effectuée à distance, par exemple de la manière illustrée à la figure 7.

Dans ce procédé, on commence par appliquer à l'étape 40 le support adhésif 1 sur une zone de test et l'on envoie à l'étape 41 ce support adhésif à un centre de diagnostic,

lequel établit à distance, à l'étape 42, un diagnostic. La personne ayant subi le test peut recevoir à l'étape 43 le résultat de l'analyse, accompagné par la prescription d'un produit antirides par exemple.

Le support 1 peut être envoyé tel quel au centre de diagnostic, après application sur la peau.

On peut également procéder, comme illustré à la figure 8, à l'acquisition, dans une première étape 50, de l'image formée sur le support 1 au moyen d'une caméra ou d'un scanner, puis envoyer cette image sous la forme d'un fichier à l'étape 51 à un centre de diagnostic, en se connectant par exemple à un site Internet. Le diagnostic peut être effectué de manière automatique à l'étape 52, par comparaison automatique des images au moyen d'un moteur de reconnaissance de formes par exemple, puis le résultat de l'évaluation est envoyé à l'étape 53 à la personne ayant effectué le test, par un courrier conventionnel ou par un courrier électronique.

Le serveur Internet auquel les images sont envoyées peut être agencé pour mémoriser toutes les images reçues afin d'afficher par exemple par la suite ces images simultanément ou successivement, les comparer et déterminer l'efficacité d'un traitement ou de décider du besoin d'un traitement, par exemple.

Un ou plusieurs supports peuvent être commercialisés avec un produit antirides 5 et son emballage 6 sous la forme d'un kit.

Dans ce cas, l'emballage 6 comporte avantageusement un ensemble d'images de référence 21 formant un atlas d'auto-évaluation, ainsi qu'une zone sombre 23 facilitant l'observation de l'image formée sur le support adhésif 1.

Bien entendu, l'invention n'est pas limitée aux exemples qui viennent d'être donnés.

On peut notamment réaliser le support 1 sous de multiples formes, avec une surface adhésive ayant un contour circulaire, comme illustré à la figure 10, et le support peut être non transparent, par exemple de couleur foncée, afin d'éviter d'avoir à le placer devant une zone sombre.

Bien que l'invention ait été décrite principalement dans son application à l'évaluation des reliefs de la peau telles que les rides ou ridules, l'invention s'applique également à l'évaluation de reliefs de la peau tels que les pores, les cicatrices, les lignes de la main, les empreintes digitales.

REVENDICATIONS

1. Procédé d'évaluation du relief de la peau, comportant les étapes suivantes :

- appliquer un support (1) comportant une surface adhésive (2) sur une zone de test (T) de la peau,
- retirer le support,
- évaluer une image formée sur la surface adhésive (2) du support (1), ladite image résultant de la modification d'un aspect de la surface adhésive essentiellement aux endroits où la surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec des zones en creux de la peau telles que les rides ou ridules.

2. Procédé selon la revendication 1, caractérisé par le fait que l'on évalue le degré de vieillissement de la peau au vu de l'image formée sur le support (1).

3. Procédé selon l'une des revendications précédentes, caractérisé par le fait que le support (1) est transparent.

4. Procédé selon la revendication précédente, caractérisé par le fait que l'examen du support s'effectue en le disposant devant un fond (4 ; 23) de couleur foncée.

5. Procédé selon la revendication 4, caractérisé par le fait que le support (1) est déposé sur le fond (4 ; 23) de couleur foncée sans le faire adhérer à ce dernier.

6. Procédé selon l'une quelconque des revendications précédentes, caractérisé par le fait que le support (1) comporte une languette de préhension (3) débordant d'un côté au moins de la surface adhésive (2).

7. Procédé selon l'une quelconque des revendications précédentes, caractérisé par le fait que ladite zone de test (T) est choisie parmi les régions suivantes :

- patte d'oie,
- front,
- coin de la bouche.

8. Procédé selon l'une quelconque des revendications précédentes, caractérisé par le fait que l'on compare l'image formée sur la surface adhésive (2) avec des images de référence (21), correspondant à divers degrés de vieillissement de la peau.

9. Procédé selon la revendication précédente, caractérisé par le fait que les images de référence (21) sont imprimées.

10. Procédé selon la revendication 8, caractérisé par le fait que les images de référence (21) sont affichées à l'écran (E) d'un ordinateur.

11. Procédé selon l'une des revendications 8 à 10, caractérisé par le fait que la comparaison entre l'image formée sur la surface adhésive (2) et les images de référence (21) est effectuée à l'œil nu.

12. Procédé selon l'une des revendications 8 à 10, caractérisé par le fait que la comparaison entre l'image formée sur la surface adhésive (2) et les images de référence (21) est effectuée de manière automatisée.

13. Procédé selon l'une quelconque des revendications précédentes, caractérisé par le fait que l'image formée sur la surface adhésive (2) est analysée à distance.

14. Procédé selon la revendication précédente, caractérisé par le fait que l'image formée sur la surface adhésive (2) est numérisée avant d'être analysée à distance.

15. Procédé selon la revendication 14, caractérisé par le fait qu'un traitement de l'image formée sur la surface adhésive (2) est effectué en vue de déterminer des paramètres caractéristiques de la zone de test.

16. Procédé selon l'une quelconque des revendications précédentes, caractérisé par le fait que l'on enregistre les images formées sur différents supports (1) appliqués successivement sur la zone de test (T).

17. Procédé selon la revendication précédente, caractérisé par le fait que ces images enregistrées sont comparées, notamment afin de mettre en évidence l'effet d'un traitement ou le besoin d'un traitement.

18. Procédé selon la revendication 16 ou 17, caractérisé par le fait que les images enregistrées sont affichées simultanément pour permettre à une personne de percevoir les effets d'un traitement ou de prendre conscience du besoin d'un traitement.

19. Système informatique, notamment un serveur Internet, agencé pour :

a) recevoir des images sous forme numérique, ces images correspondant chacune à la modification de l'aspect d'une surface adhésive (2) ayant été appliquée sur la peau, une telle modification ayant lieu essentiellement aux endroits où ladite surface adhésive (2) a été en contact effectif avec la peau, ladite surface adhésive (2) n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules,

b) analyser ces images.

20. Système informatique selon la revendication précédente, caractérisé par le

fait qu'il est agencé pour déterminer, après analyse d'une image, le degré de vieillissement de la peau correspondant.

21. Système informatique selon l'une des revendications 19 et 20, caractérisé par le fait qu'il est agencé pour :

a) établir au vu de l'analyse de chaque image un diagnostic, et

b) à partir de ce diagnostic, sélectionner un produit de soins approprié parmi un ensemble prédéterminé de produits.

22. Système informatique selon l'une des revendications 19 à 21, caractérisé par le fait qu'il est agencé pour envoyer à l'adresse de la personne ayant transmis une image un courrier l'informant du résultat de l'analyse et éventuellement lui préconisant un produit de soins.

23. Procédé de traitement cosmétique, comprenant les étapes suivantes :

a) appliquer un support (1) comportant une surface adhésive (2) sur une zone de test (T) de la peau,

b) retirer le support,

c) analyser l'image formée sur la surface adhésive (2) du support (1), cette image résultant de la modification de l'aspect de la surface adhésive essentiellement aux endroits où ladite surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules,

d) préconiser un produit de soins au vu de ce diagnostic,

e) appliquer le produit préconisé sur la peau.

24. Procédé pour déterminer l'efficacité d'un produit cosmétique ou de soins, notamment un produit antirides, caractérisé par le fait qu'il comporte les étapes suivantes :

a) appliquer un support (1) comportant une surface adhésive (2) sur une zone de test (T) de la peau,

b) retirer le support,

c) appliquer sur la zone de test (T) un produit ayant une action sur les rides,

d) appliquer un nouveau support (1) comportant une surface adhésive (2) sur la zone de test, retirer ce support,

e) comparer les images formées sur les supports avant et après l'application du produit, afin d'en tirer une information utile sur l'efficacité du produit, chaque image

résultant de la modification de l'aspect de la surface adhésive (2) essentiellement aux endroits où ladite surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec les zones en creux de la peau telles que les rides ou ridules.

25. Atlas (20) permettant d'évaluer le relief de la peau, notamment son degré de vieillissement, caractérisé par le fait qu'il comporte une pluralité d'images de référence (21) représentative chacune de l'image formée sur un support (1) comportant une surface adhésive (2) après application sur une zone de test de la peau, ces images présentant des motifs, notamment des lignes ou points traduisant la présence de rides, de ridules ou de pores sur la zone de test et correspondant par exemple à différents degrés de vieillissement de la peau.

26. Kit, comportant un produit (5) de traitement de la peau, notamment un produit antirides, au moins un support (1) comportant une surface adhésive (2) destinée à être appliquée sur une zone de test (T) de la peau et un atlas permettant, par comparaison avec l'image formée sur la surface adhésive (2) du support, d'évaluer le relief de la peau.

ABREGE

L'OREAL

Procédé d'évaluation du relief de la peau au moyen d'un support comportant une surface adhésive.

L'invention est relative à un procédé d'évaluation du relief de la peau, comportant les étapes suivantes :

- appliquer un support (1) comportant une surface adhésive (2) sur une zone de test (T) de la peau,
- retirer le support,
- évaluer une image formée sur la surface adhésive (2) du support (1), ladite image résultant de la modification d'un aspect de la surface adhésive essentiellement aux endroits où la surface adhésive a été en contact effectif avec la peau, ladite surface adhésive n'ayant pas été en contact sensible avec des zones en creux de la peau telles que les rides ou ridules.

FIG.1